Name Date

Assessment Review

Chapter

2

1. A parabola has an axis of symmetry and passes through the point   
 Find another point that lies on the graph of the parabola.

Answers

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

See left.

2. Let the graph of *g* be a horizontal shrink by a factor of followed by a translation 1 unit up of the graph of  Write a rule for *g*.

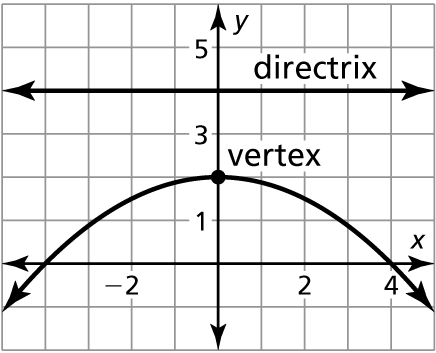
3. Identify the focus, directrix, and axis of symmetry of

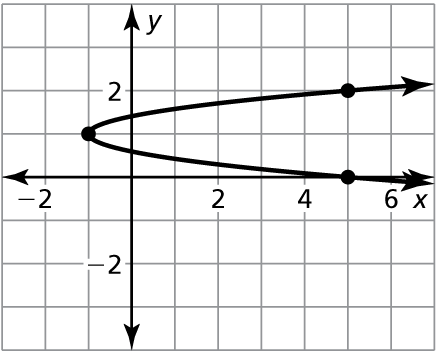
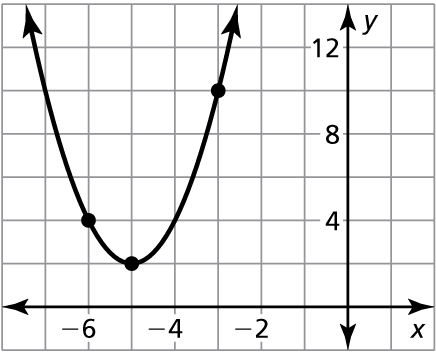
4. Identify the focus, directrix, and axis of symmetry of

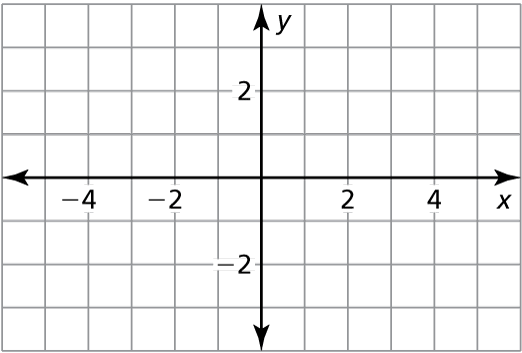
5. Explain why a quadratic function   
models the data. Then use a linear   
system to find the model.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *x* | 2 | 4 | 6 | 8 | 10 |
| *f*(*x*) | 3 | 33 | 87 | 165 | 267 |

**Write the equation of the parabola.**

 6. 7.

8. **** 9.

 10. Identify the focus, directrix,   
and axis of symmetry of   
 Then graph   
the equation.

Name Date

Assessment Review

**(continued)**

Chapter

2

11. Your class council determined that its profit from the upcoming homecoming dance is directly related to the ticket price for the dance. Looking at past dances, the council determined that the profit *p* can be modeled by the functionwhere *t* represents the price of each ticket. What should be the price of a ticket to the homecoming dance to maximize the council’s profit?

Answers

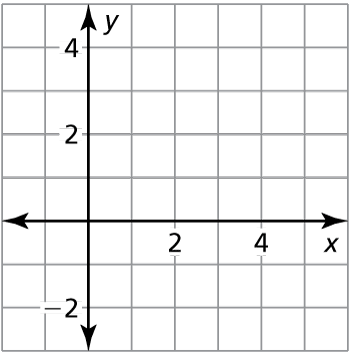
11.

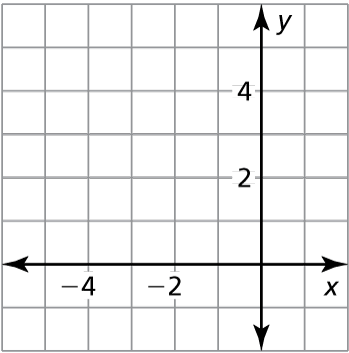
12. See left.

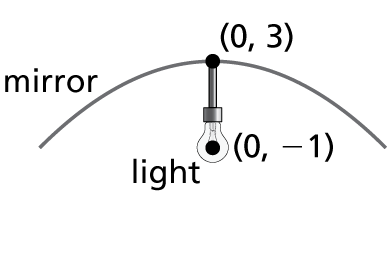
13. See left.

14.

15.

 12. Graph   
Label the vertex and axis of   
symmetry. Describe where   
the function is increasing and   
decreasing.

 13. Graph   
Label the vertex and axis of   
symmetry. Describe where   
the function is increasing and   
decreasing.

 14. A factory is producing a mirror in the shape of   
a parabola to be used in searchlights. A drawing   
of the mirror is shown. The light from the searchlight is located at the focus of the parabola, and will shine through at the given vertex of the mirror. Find an equation that represents the parabolic mirror.

15. A biologist took a count of spotted trout that migrate to the south end   
of a lake during the winter months. The table shows the population count at the south end of the lake after week 10.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Week, *x* | 2 | 4 | 6 | 8 | 10 |
| Population, *y* | 185 | 209 | 229 | 209 | 185 |

Use quadratic regression to estimate the number of spotted trout at the   
south end of the lake after week 14.